



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/676,017      10/02/2003      Hung Liang Chou      02734.0517      6440

22852      7590      01/08/2007  
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP  
901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER
----------

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
----------	--------------

1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS      01/08/2007      PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/676,017

Applicant(s)

CHOU ET AL.

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 119-153,231 and 233-313 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 119-153,231,233-313 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments, see p 27, filed 11/2/2006, with respect to the rejection of Claims 119, 168 and 273 under 35 U.S.C. 112 have been fully considered and are persuasive. The rejection has been withdrawn.
2. Applicant's arguments, see 23-25, with respect to the rejection of Claims 119-153, 168-194 and 230-312 under 35 U.S.C. 103(a) over Schmidt et al in view of others have been fully considered and are persuasive. The stretched and deformed web as disclosed is significantly different from embossing, which only results in compression of portions of the web (p 8, lines 39-56) and would not be expected by one of ordinary skill in the art to result in a product with the claimed properties and basis weight. Schmidt only generally discloses that the deformation process is adjustable for webs having different properties (p 7, lines 50-53). All examples recited pertain to webs having much higher basis weights than the claimed webs. The rejections have been withdrawn.
3. However, upon further consideration, new grounds of rejection are made in as detailed below.

***Claim Rejections - 35 USC § 103***

4. Claims 119-121, 130-131, 133-139, 141-149, 231, 233-235, 244-245, 247-253, 255-263, 268-275, 284-285, 287-293, 295-303 and 308-312 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al (WO 96/12615) in view of

Art Unit: 1731

Horimoto et al (4655877), Oku et al (5254399) and (Smook, Handbook for pulp and Paper Technologists, 2<sup>nd</sup> ed, Angus Wilde Publications, 1992).

Claims 119-121, 137-138, 141-149, 231, 233-235, 251-252, 255-263, 268-275, 291-292, 295-303 and 308-312: Anderson et al discloses a method for making a fibrous web comprising:

a) forming an embryonic (nascent) web from a furnish made up of from 6-50% by weight bi-component fibers having a length from about 1/8 in to about 1/2 in (about 3 to 12.5 mm) and the remainder lignocellulosic fibers (wood fibers) either homogeneously or with a stratified headbox (p 6, lines 13-22; p 12, lines 5-11),

b) drying the web (p 13, lines 1-9).

The basis weight of the web is from 20-60 lb. 2880 sq. ft. ream (approx 21 to 62 lb/3000 sq. ft. ream), which significantly overlays the claimed range (p 6, lines 26-29). The fiber composition and bi-component fiber length significantly overlay the claimed ranges.

Using a stratified headbox results in a stratified web with the bicomponent fibers layered between layers of cellulosic fibers (p 6, lines 22-26, p 7, lines 6-11). The stratified headbox inherently requires at least two aqueous fiber dispersions, one comprising the bi-component fibers and one comprising the lignocellulosic fibers. Note that the claims do not recite that cellulosic fibers cannot be present in the aqueous solution of bicomponent fibers.

Anderson et al does not disclose that the bi-component fibers are modified to exhibit hydrophilicity by treatment with a nonionic surfactant. Anderson et al also does

Art Unit: 1731

not disclose the line speed of the papermaking machine. Anderson et al does not disclose the formation index, wet breaking length or SAT of the web. Anderson et al does not disclose dispersing the fibers either sequentially or simultaneously. Anderson also does not disclose use of a slotted screen.

Horimoto et al discloses that the absorbent properties of a web can be improved by using short fibers of thermoplastic resin rendered hydrophilic by a introduction of a nonionic surfactant, then dehydrating the slurry (col 2, lines 26-36).

As discussed in a previous Office Action, Oku et al (col 6, lines 66-67) and Smook (p 239, last full par in right col and p 324, Table 21-1) teach that tissues are made at speeds from 400 m/min (1312 ft/min) on a slower papermaking machine up to 6890 ft/min on a fast machine.

As also discussed in a previous Office Action, Smook teaches that using fine slotted screens is a methodology commonly employed in modern papermaking systems to more effectively remove small cubical debris (p 111, first 3 pars in left col; p 229, first par in right col).

The art of Anderson et al, Horimoto et al, Oku et al, Smook and the instant invention is analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue making in general. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the tissue of Anderson et al as the claimed line speeds in view of Horimoto et al, Oku et al and Smook as typical line speeds used in the art. It would also have been obvious to render the bi-component fibers hydrophilic by introduction of a nonionic surfactant to enhance the

Art Unit: 1731

absorbing properties of the web. Using a slotted screen in the formation process would further have been obvious as a commonly used method.

It would further have been obvious to one of ordinary skill in the art to obtain the claimed properties of formation index, wet breaking length and SAT in the web because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent. In the instant case, the claimed composition and method of making are disclosed by or would have been obvious over Anderson et al in view of Horimoto et al, Oku et al and Smook, thus obtaining a structure substantially the same as the claimed structure would have been obvious.

The instant Specification recites no particular advantage for the method of dispersing the fibers to form the papermaking furnish. Where the headbox deposits the fibers homogeneously to form the web, simultaneous dispersion or sequential dispersion of the fibers are considered by the Examiner to be functionally equivalent options that would have been obvious to one of ordinary skill in the art.

Claims 130-131, 133, 244-245, 247, 284-285 and 287: Anderson et al discloses that the dryer is a through air dryer (p 7, lines 15-17).

Anderson et al discloses that the web is creped from a Yankee dryer (p 9, lines 9-12; p 13, lines 1-10; p 14, line 14 to p 15 line 14).

Anderson et al discloses that, where a stratified headbox is used, the central core of the web is made up of a substantial amount of bi-component fibers, thus the web is stratified (p 7, lines 6-11).

Claims 134-136, 248-250 and 288-290: Anderson et al discloses that, prior to winding onto parent rolls, the web and bi-component fibers are cured in ovens at a temperature preferably between 220 and 320 °F, which significantly overlays the claimed range (p 9, line 25 to p 10, line 2).

Claims 139, 253 and 293: Anderson et al discloses that the bi-component fibers comprise polyester, polyolefins, such as polyethylene, polyamides and/or polyacrylics (p 8, lines 18-22).

5. Claims 122-129, 140, 150-153, 236-243, 254, 264-267, 276-283, 294, 304-307 and 313 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al in view of Horimoto et al, Oku et al and Smook, as used in the immediately preceding rejection, and further in view of Schmidt et al (EP 0810078 A1).

Anderson et al, Horimoto et al, Oku et al and Smook do not disclose addition of wet or dry strength agents, the use of tri-component fibers, formation of the tissue web by wet pressing, or embossing of the web.

Smook teaches that it is known in the art to use dry strength resins to improve burst and tensile strength and wet strength resins for retention of strength when a paper is wetted. Smook also teaches that the trend is toward the increased use of synthetic polymers such as latexes and polyacrylamides alone or in combination with starches and gums (pp 224-225). Smook lists many of the claimed wet and dry strength resins as known in the art (p 224, Table 15-4). Thus it is well known in the art to use the claimed wet and dry strength resins. Smook further teaches that embossing is used to impart decorative effects to papers and napkins (tissues) (p 346).

Schmidt et al discloses a method for making a fibrous web, tissue or towel (p 13, lines 20-23) comprising

- a. providing an aqueous slurry of fibers including cellulosic wood fibers (p 4, lines 3-15 and p 5, lines 14-15), thermally bondable fibers (p 5, lines 41-42), preferably hydrophilic (p 6, lines 13-14), that can be bi-component or tri-component fibers (p 5, lines 57-58)

- b. depositing the fibers simultaneously on a wire and forming the fibers into a nascent web (p 7, lines 1-2)

- c. drying the web (p 7, line 2).

- d. heat embossing the web as a method known in the art to melt the thermoplastic fibers (p 6, lines 17-19).

Schmidt et al discloses that the bi-component or tri-component thermally bondable fiber can comprise polyethylene, polypropylene or polyesters. Schmidt et al also discloses that a suitable fiber having a length of about 6.4 mm is available under



Art Unit: 1731

the tradename CELBOND® (p 6, lines 1-2, 14), which is also cited as an appropriate fiber on page 14 of the instant specification. Schmidt et al further discloses that hydrophobic polymeric fibers can be made hydrophilic by applying a surfactant (p 3, lines 51-52).

Schmidt et al discloses wet pressing (page 7, lines 12-13) for dewatering as well as through air drying (page 7, lines 18-19) as techniques known in the art. Schmidt et al also discloses creped the fully dried web from a Yankee dryer to increase flexibility (page 7, lines 21-22).

Schmidt et al discloses addition of wet and dry strength agents known in the art, including polyamide-epichlorohydrin, urea-formaldehyde, melamine-formaldehyde, polyacrylamide and polyacrylamide-glyoxal resins; starch; C<sub>2</sub>-C<sub>8</sub> dialdehydes; glutaraldehyde; and glyoxal (p 4, lines 31-36 and 45-49; p 6, lines 22-31). Thus Schmidt et al teaches that it is known in the art to use the claimed wet and dry strength resins in tissue products comprising thermoplastic fibers.

The art of Anderson et al, Horimoto et al, Oku et al, Smook, Schmidt et al and the instant invention is analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue making in general. It would have been obvious to one of ordinary skill in the art at the time of the invention to add wet and/or dry strength resins to the tissue of Anderson et al in view of Horimoto et al, Oku et al and Smook and further in view of Schmidt et al as well known practices in the art to enhance the strength (dry strength) of tissue products, to maintain strength (wet strength) while wetted during use and to provide rapid loss of strength (temporary wet

Art Unit: 1731

strength) upon disposal in a toilet so as to not clog sewer systems. It would also have been obvious to emboss the tissue, either to cure the thermoplastic fibers as a functionally equivalent method known in the art or to provide decorative effects well known in the art.

6. Claims 119, 132, 233, 246, 273 and 286 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batra et al (6162327) in view of Oku et al, Smook and Schmidt et al.

Batra et al disclose a tissue paper product comprising cellulosic papermaking fibers and optionally synthetic fibers (col 2, lines 39-42) that can be made by through air drying (col 2, lines 62-63). The synthetic fibers can be bicomponent fibers, comprising polyethylene and polypropylene, that have been treated with a surfactant to make them hydrophilic (col 7, lines 41-46). Batra discloses a stratified web wherein the synthetic fibers are between layers of cellulosic fibers, thus the synthetic and natural fibers are provided separately. Batra et al discloses air forming as an option to introduce the synthetic fibers (col 7, lines 46-48). The basis weight ranges from 18 to 80 lb/3000 ft<sup>2</sup>, with a most preferred weight of 30 lb/3000 ft<sup>2</sup> (col 8, lines 50-56). Batra et al also discloses that the tissue paper can be creped, uncreped or microcreped (col 2, lines 46-48). A single ply of the tissue can be embossed as is well known in the art (col 3, lines 56-57).

Art Unit: 1731

Batra et al also does not disclose the line speed of the papermaking machine.

Batra et al further does not disclose the formation index, wet breaking length or SAT of the web.

The disclosures of Oku et al and Smook with respect to line speed are as detailed above.

The disclosure of Schmidt et al has been detailed above. Schmidt et al also discloses that the tissue web can be made using a wet laid or air laid process (p 6, lines 50-53).

The art of Batra et al, Oku et al, Smook, Schmidt et al and the instant invention are analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue making in general. It would have been obvious to a person of ordinary skill in the art at the time of the invention to make a wet-laid, uncreped tissue in the process of Batra et al in view of Oku et al, Smook and Schmidt et al as a functionally equivalent option. It would further have been obvious to one of ordinary skill in the art to obtain the claimed properties of formation index, wet breaking length and SAT in the web for the reasons given in the first rejection above. Dispersion of the fibers in one or more aqueous solutions would have been obvious for reasons also given in the first rejection above.

**Conclusion**

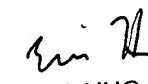
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



DRC

  
ERIC HUG  
PRIMARY EXAMINER